



GREENLAND  
MINERALS AND ENERGY LTD

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WHERE CLEAN POWER STARTS





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*The Kvanefjeld Project of Greenland Minerals and Energy has been boosted by a new technical partnership and progress in both Greenland and Denmark towards regulation for radioactive materials*



Looking south over Narsaq towards the north Atlantic

Since we last looked at Greenland Minerals and Energy A/S (GME), a subsidiary of Perth (Australia) based Greenland Minerals and Energy Ltd, a great deal of progress has been made. To recap, GME entered the Greenland scene in 2007 when it acquired a majority interest in an exploration licence covering the northern Ilimaussaq Complex, subsequently increasing that to 100 percent. The Kvanefjeld is the largest global example of a uranium and rare earth deposit, so it contains two of the most

sought after groups of raw materials, Rare earth elements (REEs) in particular make up a group of metals that have properties that are needed in mobile communications, battery technology, green energy generation, super-powerful magnets, smart lighting and a host of other up and coming technologies.

Currently China has a massive lead in the mining and downstream exploitation of rare earths. It controls more than 90 percent of global REE production, and the quota system by which it has controlled the market

*“In April we signed a MoU with NFC with the aim working together to establish a Strategic Cooperation Agreement”*

today has discouraged the growth of these industries in the western world and skewed the market, so any major alternative source that is accessible and reliable is bound to create a buzz. With the scale to supply at least 30 percent of the urgent and growing need from European and North American markets GME’s Kvanefjeld project is well placed to become one of the world’s largest and most cost-effective producers of these speciality metals. Only ten kilometres from ice-free water, 40 kilometres from an international



Southern Greenland allows for almost year round exploration

airport and close to available low cost power it has a multitude of advantages, says the company’s Managing Director Rod McIlree.

A major stumbling block until recently was the reluctance of Greenland and its mother country Denmark to even consider mining radioactive materials. Because the REEs are associated with uranium they could not be extracted under the former regulation, however in October last year Greenland’s parliament voted in favour of reversing that policy in the interest of establishing a viable minerals industry.

The radical change not only made possible the further development of a mine and processing facilities at Kvanefjeld but sent a message to investors and the international minerals trade that GME had a future.

The company had been discussing development scenarios with a number of global players over the past three years, explains McIlree, but no real progress could be made while the zero tolerance legislation was in force. One of the interested parties was China’s Non-Ferrous Metal Industry’s Foreign Engineering and Construction (NFC), which has an excellent track record in the engineering, construction and operation of mines and refineries. “Once the policy change was known they were prepared to step forward, and in April we signed a Memorandum of Understanding (MoU) with NFC with the aim working together to establish a Strategic Cooperation Agreement.” This was essentially a structure within which GME and NFC would formulate a full development scenario for a complete vertically integrated business.

*“The Feasibility Study has optimised the project on what are known as the critical rare earths, dysprosium, neodymium, yttrium, terbium and europium”*



Local Greenlandic workers

A mine, a concentrator and an intermediate refinery would be constructed in Greenland, and a dedicated separation facility built in China. A jointly owned marketing company will sell the minerals to their end users. It is likely that GME will be a majority partner in the Greenland operations, a minority partner in the separation (taking into account IP and technology – after all NFC subsidiary Guangdong Zhujiang Rare Earths Company was the first to achieve full separation of all fifteen rare earth elements in China and is recognised globally as a leader in rare earth separation technology). The marketing company would be split evenly between the JV partners.

Though all the rare earths are present at Kvanefjeld, not all are economically viable.

**Did you know?**

**7,000 tons**

Target annual production of critical REs

**956**

million tons  
Total indicated and inferred minerals at Kvanefjeld

“The Feasibility Study has optimised the project on what are known as the critical rare earths, dysprosium, neodymium, yttrium, terbium and europium” explains McIlree. “So we are tailoring the project to 7,000 tons of critical REs per annum. That dovetails with the NFC separation facility, which is designed to handle a similar quantity.” NFC is very keen to get a long supply line of these particular elements, he adds, and there are a lot of synergies with this arrangement.

Getting this agreement in place was a big step forward, and demonstrates the willingness of Chinese companies like NFC to move forward in a rapidly changing rare earth landscape. With a major overhaul of regulations inside China, the top Chinese rare earth groups are looking to align with high-quality offshore



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projects and Kvanefjeld is a clear standout. It also demonstrated their confidence that obtaining the mining licence, or exploitation licence, is something of a formality, given the amount of work and political capital that has

been put into the project thus far. “We now have enough money to fund the application and complete the bankable feasibility study and we expect to lodge the mining licence application early next year.” He adds that if

nothing untoward is identified it should take no more than a year to approve and grant the licence, opening the way for construction to start at the beginning of 2016.

And problems are unlikely. The environmental and social impact assessments (EIA and SIA) are close to being finalised. The EIA report, compiled by Danish consultants Orbicon will cover the entire exploitation period from mine development prior to the mine start, going back to the 1970s, until closure of the mine and a subsequent monitoring period. Grontmij, also a Danish firm, has worked with GMEL on establishing

the baseline studies for the Kvanefjeld SIA since 2010. It has a deep understanding of social issues affecting Greenland and will look at the amount GEM has injected into the local economy through direct and indirect employment and procurement. The company has sponsored local sporting and community events, purchased computers for local schools and an internet café, and holds public information seminars to address any concerns and keep local people up to speed with its operations and plans.

The mining licence is about more than this, though, and is complicated by the fact



The first drill holes  
were set up in 2007

*“I simply refuse to be  
the victimised people of  
climate change... we have  
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own underground”*

ALEQA HAMMOND

that though the country has given the green light to uranium production and export it does not yet have the regulatory framework in place to become a player in the global trade in radioactive materials and meet the demands of its international regulator the International Atomic Energy Agency (IAEA).

As for uranium mining, processing and marketing, GME has recently appointed a respected uranium consultant James Eggins as its Manager of Uranium Marketing to take forward its increased focus on developing the uranium business strategy. Over the coming months one of the priorities will be to strike an agreement with a uranium end user, probably a nuclear energy utility in Europe or North America. The uranium can in any case only be exported to countries that need uranium to produce clean energy in their nuclear power plants, and only if those countries have signed the Nuclear Non-Proliferation Treaty controlled by the IAEA.

Rod McIlree is hopeful that this framework approved by the Danish and Greenlandic governments before the end of the year. “Without the rules and regulations to facilitate a uranium-based application our own application clearly can’t be approved, but I think the situation is closer to resolution than most people realise – a lot of work has gone into it.” Greenland is joining a well



Exploration  
campsite

established uranium-producers club and can take the existing IAEA framework, to which countries like Namibia, Australia and neighbouring Canada already adhere. Apart from amendments to suit local conditions, it is largely a plug and play exercise. The government is 100 percent behind the change. As prime minister Aleqa Hammond, has said: “I simply refuse to be the victimised people of climate change ... we have other options than just hunting. We have the right now to our own underground.” **BE**

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